

A CYTOTAXONOMIC STUDY OF THE  
HERBACEOUS SPECIES OF SMILAX:  
SECTION COPROSMANTHUS\*

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(Continued from page 82)

TAXONOMY

*Smilax* L.

Plants dioecious, with annual or perennial shoots from perennial rhizomes, either smooth or armed and terete or angular. Leaves alternate, palmate and reticulate veined, long or short petiolate, petioles often sheathing at base and bearing a pair of tendrils. Flowers in axillary umbels on long or short peduncles, typically trimerous and hypogynous. Tepals 6, usually greenish, with those of staminate flowers larger than those of pistillate flowers. Stamens 6, fixed at the base of the tepals. Anthers oblong, 2-celled, introrse and basifixed. Ovary tricarpeal, syncarpous, superior; stigma solitary or 3, sessile; ovules 1-2 in each carpel, orthotropous. Fruit a berry. Seeds 1-6, with horny endosperm.

Stem annual, herbaceous and smooth,

ovules two in each carpel ..... section *Coprosmanthus*

Stem perennial, woody and spinous,

ovules one in each carpel ..... sections *Pleiosmilax*,  
*Smilax*, *Macranthae*, *Coilanthus*,  
and *China* (woody *Smilax*)

Section *Coprosmanthus*

*Smilax* section *Coprosmanthus* Torrey, Fl. New York. 2: 303. [1843]  
1847.

*Nemexia* Rafinesque, Neogeneton 3. 1825.

*Coprosmanthus* Kunth, Enum. Pl. 263. 1850.

*Smilax* sect. *Nemexia* (Raf.) A. DC. Monogr. Phaner. 1: 46. 1878.

*Smilax* Subgen. *Nemexia* (Raf.) Pennell in Bull. Torrey Bot. Club.  
43: 409. 1916.

Rhizome tuberous and perennial, with long thick roots. Stem annual, 1-to many per season, 3 dm to 3 m high, erect or climbing, terete or slightly angular. Leaves few and approximate at top to many and uniformly distributed, alternate; petioles (with sheathing base in some) with a pair of tendrils at the base (absent or with few rudimentary ones in *S. ecirrhata* complex); blades membranous, ovate to cordate; tip rounded and cuspidate or acute to acuminate. Inflorescences are umbels, 1-to many, on long and slender peduncles, either in leaf axils or in bract axils below foliar leaves; generally one from each node, occasionally three from the same node in one species. Flowers pedicellate, greenish, malodorous in some, trimerous



and hypogynous. Pedicels inserted in small pits on a conical or globose receptacle and slender. Tepals 6, greenish, outer ones generally broader than inner ones, those on staminate flowers larger than those on pistillate flowers, slightly ovate or elliptic to obovate. Stamens 6, reduced and nonfunctional in pistillate flowers, filaments slightly flattened at base, attached at the base of the tepals and free. Anthers oblong, 2-celled, introrse and basifixed. Ovary 3-celled, rudimentary or absent in staminate flowers. Style very short or none; stigmas three, ligulate and recurved. Ovules 2 in each carpel, orthotropous. Fruit a berry, blue to black, with three branches of strengthening tissues running through the pulp connecting the base and apex. Plants flowering generally in early Spring.

## KEY TO SPECIES

1. Plants tall, 1 to 3 meters high, climbing; tendrils many, long and functional; peduncles usually many, and from leaf axil.
  2. Leaves pubescent beneath.
    3. Blades dark green, shiny beneath, petiole long; fruits black ..... 3. *S. pulverulenta*
    3. Blades light green, not shiny beneath, petioles generally short; berries blue ..... 2. *S. lasioneuron*
  2. Leaves glabrous and glaucous beneath.
    4. Pedicels nearly 2× or more as long as the fruit; larger leaves on the main stem broad ovate, not hastate, with 7-9 main veins ..... 1. *S. herbacea*
    4. Pedicels more or less equal to diameter of the fruit, larger leaves distinctly hastate, with concave margins, and distinctly cordate base, 3-5 main veins reaching the tip, tip rounded and cuspidate ..... 4. *S. pseudo-china*
1. Plants short, up to 1 meter or less in height, erect, with a few short tendrils or none; peduncles few, the lowest one usually from the bract axil.
  5. Leaf blades glabrous and glaucous beneath; leaves few, usually 5-7, approximate at top, cordate at base, tip short acuminate or acute ..... 8. *S. biltmoreana*
  5. Leaf blades pubescent beneath.
    6. Basal leaves broadly ovate, base cordate, tip acuminate, petioles generally equal to or shorter than blade ..... 6. *S. ecirrhata*
    6. Basal leaves narrowly ovate or elliptical, base mostly ovate.
      7. Leaves approximate at top, tendrils mostly absent, petioles shorter than lamina ..... 7. *S. hugeri*
      7. Leaves subverticillate, or equally distributed, progressively smaller and narrowly ovate, tendrils usually many, petioles usually longer than or equal to lamina ..... 5. *S. illinoensis*



1. *Smilax herbacea* L.

*Smilax herbacea* L. Sp. Pl. 2. 1030. 1753.

Type: in Linnaean Herbarium, London, marked by Linnaeus. This specimen was collected by Clayton in Virginia. Linnaeus obtained this specimen evidently from Gronovius and labelled it "*Smilax annua inermis caule fusco purpureo claviculis plurimis teneris vestito. Exalis foliorum oritur pedunculus teres glaber semipedalis gerens flores in capitulos globose, collectors*". This specimen appears to be a duplicate of Clayton's No. 541 now in the Gronovian Herbarium in the British Museum. Both specimens appear to be a small branch characteristically bearing slightly elliptical leaves with pointed tips. These leaves differ from the ovate to slightly cordate leaves expected on the main stem.

*S. peduncularis* Muhl. ex Willd. in Linn. Sp. Pl. ed. 4: 786. 1806.

Type: Photograph of the type (Willdenow No. 18404, now in Botanisches Museum, Berlin — Dahlem labelled *Smilax "peduncularis . . . habitat in america boreali"*)! Kunth (Enum. Pl. 264) refers to Herb. 18402, but not seen.

*Nemexia nigra* Raf. Neogeneton 3. 1825.

Used as a new name for *S. herbacea* but, as Pennell points out, it was apparently intended for the black-fruited *S. pulverulenta* Michx.

*Nemexia cerulea* Raf. 1. c. 3. 1825. Used as a new name for *S. peduncularis* Muhl.

*Coprosmanthus peduncularis* (Muhl.) Kunth, Enum. Pl. 5: 264. 1850.

*C. herbaceus* Kunth, 1. c. 265. 1850.

*S. herbacea* var. *Simsii* A. DC. Monogr. Phan. I: 51. 1878.

Type not seen. Muhl. in h. Willd. fol. 8394. "*S. herbacea* Sims. Bot. Mag. pl. 1920". This apparently refers to a narrow-leaved *S. herbacea*.

*S. herbacea* var. *peduncularis* A. DC. 1. c. 51. 1878.

*N. herbacea* Small, Fl. S.E.U.S. 2800. 1903.

*S. herbacea* subsp. *crispifolia* Pennell, Proc. Acad. Nat. Sc. Phil. 62: 559. 1910.

Type examined. "Herb. Acad. Nat. Sc. Phil. Pennsylvania, Delaware Co. serpentine, Mineral, Sept. 6, 1908. Pennell." This apparently represents a form with narrow, rigid leaves growing in dry and sunny places.

Annual shoots up to 2.5 meters high, climbing and branching; lower cauline leaves narrow and small grading into larger upper leaves (except in younger plants wherein leaves are larger below). Leaves at tip ovate to round, mostly cordate at base. Leaves in general smooth and glaucous beneath, short or long acuminate at tip on the stem and cuspidate on branches; peduncles many on both stem and



branches, axillary to leaves; basal peduncles up to 30 cm long, upper ones progressively shorter. Flowers many in a globose head; tepals greenish, 3.5-4.5 mm long, 1.5-2 mm broad; anthers 1-1.5 mm long, shorter than filaments; style broadly ligulate; fruit about 1 cm in diameter, sub-globose, with 3-6 brownish seeds. Flowering begins in the fourth week of May in the south and extends to the end of June in New England states.

Distribution of *S. herbacea* is mostly along the Appalachian Mountains extending from Georgia and Alabama to Maine and north-eastern Canada. Specimens have been collected from Connecticut, Delaware, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia and West Virginia.

Its closest relative apparently is *Smilax lasioneuron*, a species recognised by many taxonomists as a variety of *S. herbacea*. However, *S. lasioneuron* differs from *S. herbacea* by the pubescence on the leaves and its ecological adaptation to the plains. The smooth glaucous leaf surface of *S. herbacea* is very similar to that of *S. pseudo-china*, which is comparatively smaller in size. *Smilax pulverulenta* is another close relative of this species, but differs from it by the presence of shiny dark green leaf surfaces, pubescence long and mostly on the veins, comparatively fewer flowers on the peduncle, and black fruits.

REPRESENTATIVE SPECIMENS.\* ALABAMA. AUBURN CO: Earle & Baker, 1898 (F). LEE CO: Earle & Baker, May 15, 1898 (RM). CONNECTICUT. FAIRFIELD CO: Stamford, E. M. Eames, June 10, 1895 (GH). NEW LONDON CO: Groton, Janssen, June 16, 1929 (TEX). DISTRICT OF COLUMBIA. River flat, Chain Bridge, Pennell 12072 (PH). GEORGIA. DE KALB CO: Base of Stone Mt., Mill, Boyd and Myres 481 (GH). HART CO: Wooded bluffs on Savannah R. Smith McGee Bridge, Harper 1600 (PH). LUMPKIN CO: Blood Mt., Leeds 1560 (PH). KENTUCKY. HARLAN CO: Near summit of Big Black Mt., McVaugh 8677, (TEX). MAINE. KENNEBEC CO: Sidney, Fernald & Long 13295 (PH). PENOBSCOT CO: Milford, Fernald & Long 13296 (GH, PH). PISCATAQUIS CO: Piscataquis River Valley, Dover, Fernald, June 6, 1895 (GH). MARYLAND. GARRETT CO: Kelso Gap, Backbone

\*Only a partial list of specimens examined is provided here.



Mt., *Core*, June 24, 1931 (WVA). MASSACHUSETTS. BARNSTABLE CO: vicinity of Woods Hole, *J. M. Fogg, Jr.* 1745 (MO). DUKES CO: Gay Head, *Pennell* 3317 (PH). ESSEX CO: Ipswich, *Morong*, June 23, 1875 (NY). HAMPDEN CO: *Seymour* 566 (GH, NY). NORFOLK CO: Milton, *Churchill* 295 (MO). PLYMOUTH CO: *Vail*, July 1888 (NY). WORCESTER CO: near Lancaster, *W. V. Brown*, June 9, 1946 (TEX). NEW HAMPSHIRE. COÖS CO: Shelburne, *Deane*, June 29, 1916 (GH). GRAFTON CO: Lebanon, *G. Kennedy*, Aug. 16, 1890 (GH). ROCKINGHAM CO: Hedge about rich meadows, Rye, *Robinson* 705 (GH). NEW JERSEY. CAMDEN CO: Merchantville, *Meredith*, June 2, 1921 (GH). CAPE MAY CO: Cold Springs, *Pennell* 2200 (MO). MONMOUTH CO: along Big Brook, Marlboro, *Long* 37491 (GH). SOMERSET CO: Watchung, *Moldenke* 2879 (NY). SUSSEX CO: *Britton*, Sept. 28, 1887, (NY). WARREN CO: 2.5 mi. s. of Asbury, *Godfrey* 62142 (FSU). NEW YORK. BROOME CO: Binghamton, *Millspaugh*, 1884 (F). ESSEX CO: shore of Lake Harries, New Comb, *Howe* 10162 (GH). HAMILTON CO: Adirondack Mt. along Hudson River, *Lambert* 22 (NY). New York City: *Edmondson*, June 3, 1899 (NY). ONTARIO CO: *Hall*, 828-1834 (F). ST. LAWRENCE CO: Narros Island, Blake Lake, *Fernald, Wiegand & Eames* 14219 (GH). TOMPKINS CO: South Hills, Ithaca, *Thomas* 2018 (GH). ULSTER CO: vicinity of Lake Mennewaska, *Sowden*, July 3, 1922 (PH). WESTCHESTER CO: Bedford Hills, *Pennell* 7085 (PH). NORTH CAROLINA. ALLEGHENY CO: 1.7 mi. n. of Amelia, *Radford* 34093 (NCU). ASHE CO: 0.6 mi. s. of Warrentown, *Radford*, Aug. 1, 1958 (NCU). BURKE CO: Tim's Creek, east of Drowning Creek Mt., *Bell* 6518 (NCU). DAVIDSON CO: Ellis Creek, about 2 mi. e. of Newsome, *Ahles* with *Haesloop* 57412 (NCU). GUILDFORD CO: Greensboro, *Causey* (NCU). HAYWOOD CO: Piney Mt., *Coker*, July 31, 1926 (NCU). JACKSON CO: 1 1/4 mi. s.w. of Balsam, *Radford*, June 26, 1946 (NCU). MADISON CO: 7.4 mi. n. of jct. U. S. 19 and 23 on U. S. 23, n. of Mars Hills, *Ahles*, with *Duke* 46324 (NCU). MONTGOMERY CO: 1.3 mi. w. of Eldorado on N. C. 109, *Ahles* with *Haesloop* 57346 (NCU). ORANGE CO: Chapel Hill, *Radford & Steward* 650A, (NCU). POLK CO: Tryon, *Peattie* 1173 (NCU). ROWAN CO: 3 1/2 mi. n.w. of Cleveland, *Ahles* 12980 (GH). SWAIN CO: Andrews Bald Ridge, Great Smoky Mt. Nat. Park, *Sharp & Jennison* 585 (TENN). TRANSYLVANIA CO: Gloucester, *Memminger*, Sept. 20-30, 1895 (NCU). YANCY CO: 3 mi. n. of Burnsville, *Radford*, July 9, 1946 (NCU). WILKES CO: 4 1/2 mi. n.w. of Vashti, *Radford* 13718 (NCU). PENNSYLVANIA. BEDFORD CO: 1 1/2 mi. n. ne. of Grand View, *Berkheimer*, July 8, 1939 (MO). BUCKS CO: Hedgerow, 2 1/2 mi. n.w. of Neshaminy, *McDowell* 267 (GH). CARBON CO: 1 mi. s. se. of Little Gap Village, *Wherry*, June 13, 1952 (PH). CENTRE CO: Bear Meadows, *Leeds* 1405 (PH). CHESTER CO: Nottingham Barrens, *Pennell* 1421 (MO). CLARION CO: 1 3/4 mi. s. of Sligo, *Wahl* 18790 (FSU). DELAWARE CO: *Pennell*, July 5, 1905 (F). ELKS CO: 3



mi. w. of Ridgeway, *Westerfield* 2159 (GH). JEFFERSON CO: 1 mi. n.e. of Summerville, *Wahl* 3593 (GH). MONTGOMERY CO: near Sumneytown, *Leeds* 1956 (MO). NORTHAMPTON CO: Fallowfield, 1 mi. e. of Lower Saucon, *Schaeffer, Jr.*, 5069 (GH). PERRY CO: above Marysville, *Small*, June 18, 1888 (F). WARREN CO: Heart's Content, Allegheny National Forest, 20 mi. s. of Warren, *Pennell* 26613 (PH). WESTMORELAND CO: *Block*, June 1881 (LCU). YORK CO: *Britton*, July 2-6, 1904 (NY). RHODE ISLAND. NEWPORT CO: north of Crescent Beach, Block Island, *Fernald, Long & Torrey* 9249 (GH, PH). PROVIDENCE CO: Providence, *Thurber*, June 1844 (GH). SOUTH CAROLINA. DARLINGTON CO: at Lauthers Lake, *B. E. Smith* 9, (NCU). OCONEE CO: *House* 2119 (US). TENNESSEE. COOKE CO: along Highway 75, near Cosby, *Raper & Jenison* 3383 (TENN). HENDERSON CO: near Club Lake, moist slope, Natchez Trace State Park, *Sharp, Fairchild, E. Clebsch & A. Clebsch*, July 8, 1948 (TENN). MONROE CO: moist slope along Sycamore River Gorge, *Gillespie, Laing & Sharp* 18846 (TENN). VERMONT. ADDISON CO: Middlebury, *Brainerd*, June 1877 (GH). BENNINGTON CO: Manchester, *Day*, Aug. 30, 1898 (GH). WINDHAM CO: banks of Corn River, Westminster, *Robinson* 4, (GH). VIRGINIA. APPOMATTOX CO: 8 mi. n.w. of Pamplin City, *Kral* 11215 (NCU). BLAND CO: Dismal Creek, near Giles Co. line, *Potter*, July 12, 1936 (NCU). BOTETOURT CO: along Bearwallow Creek, below Gap, *Freer* 1602 (GH). DINWIDDIE CO: east of Burgess Station, *Fernald & Long* 9898 (GH). FAIRFAX CO: Great Falls, *Pennell* 1670 (NY). GILES CO: west side of Mt. Lake, *Kral* 9176 (FSU). GRAYSON CO: Troutdale, *Gleason*, June 21, 1940 (NY). MONTGOMERY CO: 1.5 mi. s. of Ellett, *Kral* 9176 (FSU). PAGE CO: Stony Man Mt. and vicinity in the Blue Ridge, near Luray, *E. S. Steele & Mrs. Steele* 176 (GH, NY). PULASKI CO: along Peak Creek on Peak Mt., *Small*, July 16, 1892 (GH, MO). Richmond: University Campus, *Angus and Haywood* 4471 (GH). SHENANDOAH CO: Valcour, *Pennell* 12119 (PH). SMITHE CO: northwest slope of Mt. Rogers, *Ramseur* 4402 (NCU). SOUTHAMPTON CO: along Three Creek, n.w. of Carey Bridge, *Fernald & Long* 10204 (GH). SUSSEX CO: along Nottoway River, s.e. of Homeville, *Fernald & Long* 10203 (GH). WEST VIRGINIA. BARBOUR CO: 1 mi. n. of Kasson, Rt. 92, *Haller*, June 5, 1951 (WVA). BRAXTON CO: Sugar Creek, s. of Grassaway, *Boggs*, June 29, 1953 (WVA). CALHOUN CO: Grantsville, *Harris*, July 1, 1933 (WVA). MERCER CO: Oakvall, Mtn., *McNeill*, May 30, 1931 (WVA). MONONGALIA CO: *Millspaugh* 63 (WVA). OHIO CO: Wheeling Girls Scout Camp, woody hillside Middle Wheeling Creek, *Bartholomew*, July 22, 1934 (WVA). PENDLETON CO: Spruce Knob, *Rydberg* 9175, (NY). POCAHONTAS CO: along U. S. 250, 2 mi. n. of Durbin, *Clarkson* 3956 (WVA). PRESTON CO: Cheat River near Kingwood, *Core*, Aug. 1, 1931 (WVA). TUCKER CO: *Sharp*, July 18, 1940 (WVA). TYLER CO: along Tygarts River, 2 mi. n. of Crafton, *Core*



5496 (WVA). WEBSTER CO: *Hinkle*, Aug. 1957 (WVA). WETZEL CO: thickets at north of Sugar Run, 1 1/2 mi. w. of Littleton, *Haught* 407, (WVA). WRIT CO: on shady bank of Little Kanawha River, about 3/4 mi. above mouth of Reedy Creek, *Bartholomew* W-1312 (WVA).

## 2. *Smilax lasioneuron* Hook.

*Smilax lasioneuron* Hooker, Fl. Bor.-Am. 2: 173. Pl. 187A. 1840.

Type: Royal Bot. Garden, Kew, "Hab. Carlton House, Fort on the Saskatchewan, Dr. Richardson"!

*Coprosmanthus lasioneuron* (Hook) Kunth, Enum. Pl. 5: 265. 1850.

*S. herbacea* var. *lasioneuron* A. DC., Monogr. Phan. 1: 52. 1878, synonym.

*S. herbacea* var. *inodora* M. E. Jones, Bot. Gaz. 4: 248. 1879.

Type not seen.

*S. diversifolia* Small, Bull. Torrey Bot. Club. 25: 607. 1898.

Type: Herb. Columbia University at NY, collected along the Flint River near Albany, Ga., J. K. Small. Apparently same as *S. lasioneuron* Hook!

*S. tenuis* Small, Bull. Torr. Bot. Club. 25: 607. 1898.

Type seen. Herb. of Columbia University at the New York Bot. Garden. "The original specimens were collected by Dr. Hale, many years ago in Louisiana". This is taken to be a depauperate young specimen of *S. lasioneuron* Hook.

*Nemexia tenuis* Small, Fl. S.E. U.S. 281. 1903.

*N. herbacea* var. *melica*. A. Nelson, Proc. Biol. Soc. Wash. 17: 175. 1904.

Type not seen.

*N. lasioneuron* (Hook.) Rydb. Bull. Torr. Bot. Club. 32: 610. 1905.

Shoots 2-2.5 meters high and branching. Basal cauline leaves narrow and small; larger leaves above, short petioles, ovate to round, mostly cordate at base, pubescent below and margin convex, tips acuminate to round and cuspidate: younger plants with larger leaves below: the transition between leaves and bracts is abrupt. Peduncles many on stems with a few occasionally on branches, axillary to leaves, generally short, with many flowers in a globose head at tip. Tepals greenish, 3.5-4.5 mm long, 1.5-1.75 mm broad. Anthers 1.5-2 mm long, generally equal to or shorter than the filaments. Fruit a subglobose berry, dark blue, glaucous, with 3-5 seeds. Flowering begins in the second week of May and reaches its peak in the fourth week in the south; about 2 weeks later in the north.



Distribution is mostly in the central plains and lower elevations of the Appalachian and Rocky Mountains. In the northern and western drier areas, plants are shorter than those in the southern humid areas. Plants have been collected from Alabama, Arkansas, Colorado, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, West Virginia, Wisconsin and Wyoming.

Its closest relative appears to be *Smilax herbacea*. Apart from its ecological adaptation to lower elevations and drier conditions, the only easily recognisable morphological difference is the presence of pubescence on the leaves in *S. lasioneuron*. The much-emphasised shorter peduncle in this species is a highly fluctuating character. Specimens from central Canada (the type specimen was collected from this region) show greater uniformity in this character, but in the humid southern regions of central United States, the peduncles are generally long.

There is considerable morphological variation in *Smilax lasioneuron* populations in western Florida, especially along Chippola and Appalachicola Rivers. Two other species, *S. hugeri* and *S. biltmoreana*, are also found in the same general area. Intermediate forms of these species are found in herbaria. I feel, therefore, that it is safe to assume that there is some amount of hybridization between all combinations of these species in this general area.

REPRESENTATIVE SPECIMENS: ARKANSAS. BENTON CO: Sulphur Spring along Butler Creek, *Pennell* 5366 (PH). FULTON CO: Mammoth Springs, *Pennell* 11563 (PH). LOGAN CO: top of Magazine Mt., *Pyle* 555 (TEX). COLORADO. BOULDER CO: near Boulder, *Ramaley* 2612 (RM). LARIMER CO: along Buckhorn Creek, *Osterhout*, June 24, 1897 (RM). Horsetooth Gulch, *Crandall* 2438 (RM). FLORIDA. GADSDEN CO: Chattahoochee, *Godfrey* 54563 (GH). GEORGIA. BURKE CO: woods facing the Shell Bluff on Savannah River, N. Leeds, *Harper* 2749 (PH). DE KALB CO: *Eggert*, May 23, 1897 (MO). ILLINOIS. CHAMPAIGN CO: *Gates* 2020 (MICH). COOK CO: west shore of Lake Michigan, Glencoe, *Churchill*, July 26, 1926 (MO). DU PAGE CO: Glen Elbyn, *Shaughnessy* 109, (WIS). JACKSON CO: Big Muddy and Crab Orchard Creek, *McGee Jr.*, 778 (MO). JO DAVIESS CO: east of Apple River



Canyon State Park, *Koelling* 423 (TENN). JOHNSON CO: Reevesville, *Palmer* 15354 (MO). KANKAKEE CO: near the mouth of Rock Creek, *Jones* 15888 (MO). LAKE CO: *Gates* 3115 (MICH). LA SALLE CO: Starved Rock, *Greenman, Jansing Jr., & Dixon* 118 (GH). MC DANOUGH CO: *Kauffman* 204, (MICH). MENARD CO: Athens, *Hall*, 1861 (GH). PEORIA CO: *Stewart*, July 2, 1869 (F). STARK CO: along Mud River, *Chase* 1608 (MICH). ST. CLAIR CO: *Eggert*, May 13, 1896 (MO). UNION CO: Wolf Lake, *Fuller* 595 (WIS). INDIANA. ALLEN CO: west end of Preglacial Lake Maumee, *Friesner* 20388 (GH). CLINTON CO: *M. Ek*, July 4, 1942 (MO). HARRISON CO: along Mosquito Creek, about 3 mi. n. of New Boston, about 4 mi. e. of Laconia, *Deam* 63685 (FLAS). MONTGOMERY CO: *Ward*, Aug. 26, 1944 (FLAS). POSEY CO: in a low wood about 2.5 mi. s.w. of Hovey Lake, *Deam* 24325 (A). SULLIVAN CO: woods near Paxton, *McCoy* 3791 (FSU). WAYNE CO: Earlham, *Pennell* 9819 (PH). WHITE CO: small island in Freeman Lake, *Ward*, Aug. 22, 1945 (FLAS). IOWA. BOONE CO: Cass Twp. 5 mi. s.w. of Luther, along Des Moines River, *Hyden* 8508, (NY, MO). DECATUR CO: *Anderson*, June 25, 1904 (RM). DICKINSON CO: West Okohaji Lake, *Shimek*, June 12, 1916 (WIS). EMMET CO: Esterville Twp., *Hyden* 3031 (GH). FAYETTE CO: *Fink*, June 1894 (GH). JOHNSON CO: *T. J. Fitzpatrick & M. F. L. Fitzpatrick* (F). PLATO ALTO CO: eastern shore of Lost Is. Lake in Lost Is. Park, *Hyden* 8510 (TEX). KANSAS. ATCHINSON CO: 3 mi. n.w. of Atchinson, *Sr. Jeanette*, July 18, '36 (LCU). DONIPHAN CO: 1 mi. s.e. of Iowa Point, *Horr* 4477 (GH). LINN CO: *Bush* 15502 (MO). RILEY CO: *Norton* 515 (GH, MO, NY, RM, US). WILSON CO: near Neodasha, *Palmer* 21385 (A). WYANDOTTE CO: Rosedale, *Mackenzie*, July 12, 1892 (NY). KENTUCKY. NELSON CO: *Samuels, Sr. Agnes* 1522 (LCU). MICHIGAN. BERRIEN CO: New Buffalo, *Lansing* 3290 (F, GH, WIS). MONROE CO: 2 mi. s.e. of Milan, *Robertson* 384 (MICH). ST. CLAIR CO: near Port Huron, *Dodge*, June 18, 1893 (MICH). ST. JOSEPH'S CO: Mendon, *Umback* 7642 (MICH). WASHTENAW CO: n. of Ann Arbor, *Ehlers* 3792 (MICH). WAYNE CO: *Farwell* 9080 (MICH). MINNESOTA. HENNIPIN CO: Spring Grove, *Rosendahl*, June 6, 1902 (GH). OLMSTEAD CO: 2 mi. s. of Morion, *Butters, Moore & Schultz* 7562 (LCU). ST. LOUIS CO: 1 mi. w. of Cotton, *Lakela* 6907 (WIS). MISSOURI. ADAIR CO: 6 mi. n. of Novinger, *Palmer & Steyermark* 4114 (MO). CASS CO: *Broadhead*, June 7, 1864 (MO). CLARK CO: near Dumas, *Palmer* 21864 (A). CRAWFORD CO: 4 mi. s. of Bourbon, *Bauer* 225 (F). DALLAS CO: 2.5 mi. n.w. of Junas, *Steyermark* 24205 (MO). FRANKLIN CO: *Pammel*, June 25, 1898 (MO). GREEN CO: along U. S. 66, e. of Springfield, *Henderson*, May 10, 1959 (FSU). HOLT CO: above Missouri River, near Forest City, *Palmer* 25394 (A). HOWELL CO: 8 mi. w. of Burnham, *Steyermark* 23540 (MO). JACKSON CO: Independence, *Bush* 719 (MO). JASPER CO: near Forest Hill, *Palmer* 18371 (GH). JEFFERSON CO: *Eggert*, July 15, 1892 (MO).



Ditmar, *Kellog* 1660 (MO). LAFAYETTE CO: 1 mi. n. of Chapel Hill, *Steyermark* 24699 (MO). MADISON CO: *Steyermark* 71206 (F). MARION CO: near Taylor, *Palmer & Steyermark* 40650 (MO). MERCER CO: 3 mi. s. of Linesville, *Palmer & Steyermark* 41302 (MO). NEWTON CO: George Washington Carver National Monument near Diamond, *Palmer* 62804 (WIS). OZARK CO: *Steyermark* 22800 (MO). PIKE CO: *Davis* 4172 (MO). POLK CO: near Gydon Springs, *Palmer* 29022 (A). ST. LOUIS CO: Allenton, *Letterman*, June 7, 1898 (MO, NY). TEXAS CO: 3 mi. w. of Houston, *Steyermark* 15537 (MO). WEBSTER CO: 3 mi. w. of North View, *Palmer* 60209 (F). MONTANA. ROOSEVELT CO: Calais, *Blankinship*, July 14, 1900 (MO). NEBRASKA. CHERRY CO: *Tolstead* 105 (GH). LANCASTER CO: Lincoln, *Hedgcock*, May 22, 1900 (TEX). NANCE CO: 4 mi. n. of Fullerton, *Osborn* 1200F (MO). SHERIDAN CO: 13 mi. n. of Haysprings, *Nixon* 81 (RM). THOMAS CO: Emerson Lake, *Kiener* 20061 (F). NEW YORK. OSWEGO CO: near Cleveland, *House* 15937 (GH). NORTH DAKOTA. BOTTINEAU CO: Turtle Mt., *Lunell*, July 23, 1902; Sept. 9, 1902 (RM). CASS CO: Banks of Red River, Fargo, *A. Nelson & A. Nelson* 1018 (RM, MO). DUNN CO: Matt Olson's ranch, Killdear, *Fancy* 235 (TEX). MCHENRY CO: Leeds, *Lunell*, Sept. 10, 1908 (NY). NELSON CO: Stump Lake, *Tufte* 240 (RM). OHIO. BUTLER CO: near Oxford, *Wetmeyer & Waters* 162 (MICH). HAMILTON CO: near Cincinnati, *Lloyd*, May 23, 1888 (MO). LUCAS CO: Reservation, Sylvania, *Wilson* 1482 (WIS). PORTAGE CO: *Webb* 1542 (GH). SCIOTO CO: Shawnee State Forest, Camp Gordon, *Demaree* 10682 (GH, MO). OKLAHOMA. KAY CO: *White* 1898 (NY). SOUTH DAKOTA. FALL RIVER CO: *Visher* 2687 (RM). HARDING CO: 102 (RM). LAWRENCE CO: Piedmont, *Palmer* 37230 (GH). MELLETTE CO: Mellette, *Brenckle* 41-16 (MO). PENNINGTON CO: Spring Creek, *Over* 16208 (RM). SHANNON CO: along wooded River Creek, *Over* 16210 (PH). SPINK CO: near James River e. of Mellette, *Brenckle* 41-16 (GH). WASHABAUGH CO: *Visher* 2280 (NY). TENNESSEE. HARDEMAN CO: slopes near Chickasaw State Park, *Adams* 12684 (TENN). WEST VIRGINIA. HAMPSHIRE CO: Hanging Rock, *Frye* 563 (WVA). WISCONSIN. ADAMS CO: 2 1/2 mi. n.e. of Jhondshy's, *Brown*, July 15, 1948 (WIS). DROWN CO: Treble, *Schuette*, May 19, 1884 (GH). BUFFALO CO: Eagle Bluff, Fountain City, *Fasset & Wilson* 5099 (MICH, WIS). DANE CO: near Monona Village, *Kuhlman* 41 (WIS). DUNN CO: Oakwoods, s. of Elk Mount, *Meyer* 128 (WIS). IOWA CO: sandstone cliff, *Kieckhefer, Lindfors & Thompson*, June 8, 1958 (WIS). JACKSON CO: 2 mi. w. of Hatfield, *Grether* 6726 (WIS). LAFAYETTE CO: 2.5 mi. w. of Gratiot, *Hagens, Melville & Shaughnessy*, Sept. 28, 1956 (WIS). MARQUETTE CO: *Iltis, Trenk & Noamesi* 6354 (WIS). OZAUKEE CO: banks of Milwaukee River, about 3 mi. s. of Fredonia, *Zedler*, June 23, 1963 (WIS). RICHLAND CO: near Sextonville, *Fosberg* 300 & 380 (WIS). ROCK CO: *Croff*, Sept. 23, 1961 (WIS). SAUK CO: Reedsburg,



Hansen 1018 (WIS). ST. CROIX CO: edge of bog n. of Wis. Rt. 64, H. H. Iltis, F. G. Iltis & G. Noamesi (WIS). TREMPEALEAU CO: H. H. Iltis 6308 (WIS). VERNON CO: Viroqua, Smith 7248 (WIS). Bergan Twp., Hartley 1029 (WIS). WALWORTH CO: Town of Geneva, Wadmond (WIS). WASHBURN CO: Minong, Fassett 8601 (WIS). WAUKESHA CO: Musbego, Lake Huron, Shirler, July 4, 1928 (WIS); vicinity of Chenequa, w. side of Pine Lake, Schenke & Niss, June 18, 1942 (WIS). WYOMING. CROOK CO: Sundance Mt., R. Nelson 2139 (MO, RM). CONVERSE CO: Mill Creek, E. Nelson 703 (RM). SHERIDAN CO: Dayton, Tweedy 2277 (NY).

### 3. *Smilax pulverulenta* Michx.

*Smilax pulverulenta* Michaux, Fl. Bor.-Americ. 2:238. 1803.

Type: A. Lourteig of Mus. Nat. Hist. Naturelle, Paris, who examined the Michaux collections, wrote: \*"In the folder of *Smilax pulverulenta* Michx. there is no specimen but only the original label. There are no signs of having been any specimen fastened on. Therefore, the specimen of Richards written by himself (who has studied all the plants for Michaux Fl. Bor. Amer.) must be taken as the type specimen". The author examined Richards' specimen in Mus. Nat. Hist. Naturelle, Paris. This specimen is to be considered as the lectotype.

*S. herbacea* var. *pulverulenta* A. Gray, Manual. 486. 1848.

Shoots up to 2.5 meters high, climbing and branching. Basal leaves small and narrow, larger leaves above 8-16 cm long. On younger plants the basal leaves are the largest and long petiolate. Leaves on branches much smaller, oblong, and with cuspidate tip. Leaves long cordate, margin convex, lower surface shining dark green, pubescent mostly on the veins, tip long acuminate. Inflorescences many, heads globose; peduncles usually equal to or shorter than the subtending leaves. Tepals 3.5-5 mm long, about 1.5 mm broad; anthers 1-1.5 mm long, generally shorter than the filament. Fruit a subglobose berry, 8-10 mm in diameter, with 3-5 seeds. Flowering extends from the third week of April to the first week of June in the north, i.e., about two weeks earlier than *Smilax herbacea* and *S. lasioneuron*.

Distribution is along the Ozark Plateau and Boston Moun-

\*Personal correspondence.



tains in Missouri and Arkansas through Tennessee and Kentucky to southern New York, western Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, North Carolina and South Carolina. Specimens have been collected from Arkansas, Delaware, Illinois, Indiana, Kansas, Kentucky, Maryland, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, Pennsylvania, Tennessee and Virginia.

The nearest apparent relatives are *Smilax herbacea* and *S. lasioneuron*. Many recognise this species as a variety of *S. herbacea*, but it is markedly distinct from *S. herbacea* by its dark green shiny and pubescent leaf surface and black fruit. *Smilax pulverulenta* flowers about two weeks earlier than *S. herbacea* and *S. lasioneuron*. This behaviour can be considered an isolating mechanism of some importance.

REPRESENTATIVE SPECIMENS: ARKANSAS. INDEPENDENCE CO: Batesville, *Demaree* 17073A (NY). DELAWARE. KENT CO: Woodland Beach, *Schmid, Jr.*, May 11, 1941 (PH). NEW CASTLE CO: Christiana Twp., *Pennell* 1528 (NY). ILLINOIS. JOHNSON CO: Vienna, *Palmer* 14989 (MO). RICHLAND CO: Bird Haven, Olney, *Ridgway*, May 18, 1919 (GH). UNION CO: Pine Hills, *Gleason* 2279 (GH). INDIANA. HARRISON CO: 2 mi. s.e. of Croydon, *Deam* 35561 (PH). HUNTINGTON CO: 3 mi. e. of Andrews, *Henderson* 61-364 (FSU). POSEY CO: near New Harmony, *Cain*, Summer 1932 (TENN). KANSAS. ATCHINSON CO: along Mo. Pac. R.R. in s.e. corner of the County, *Horr* 4460 (GH). KENTUCKY. UNION CO: *Schacklette* 240 (NY). MARYLAND. CECIL CO: moist loamy woods along Great Bohemia Creek, Middleneck, *Long* 37265 (GH). MONTGOMERY CO: Bethesda, *Bartlett* 2180 (FSU). MINNESOTA. DAKOTA CO: *Moore* 15751 (MO). MISSOURI. BARRY CO: 4.5 mi. s.w. of Cape Farr, *Steyermark* 22606 (MO). CLINTON CO: Trimble Wild Life Area, *Howard*, June 21, 1950 (F). DOUGLAS CO: 1 mi. s. of Bryant and Bryant Creek, *Steyermark* 10485 (MO). GENTRY CO: 3 mi. e. of Albany, *Gleason* 9270 (NY, WIS). GREENE CO: *Blankinship*, Sept. 16, 1896 (GH). HOWELL CO: Willow Springs, *Pennell* 11616 (PH). JASPER CO: Webb City, *Palmer* 487 (MO). LACLEDE CO: Lebanon, *Pennell* 11655 (PH). MADISON CO: Mine La Motte, *Greenman* (MO). MARIES CO: s.e. of Vienna, *Steyermark* 73660 (F). MILLER CO: along Little Saline Creek, *Steyermark* 73713 (F). MONITEAU CO: half way up Baker Bluff, *Steyermark* 73342 (F). MORGAN CO: *Steyermark* 72664 (F). NEWTON CO: Sarcoxie, *Palmer* 6277 (F, MO, US). OZARK CO: n. of Gainesville, *Steyermark* 68581 (F). SCOTT CO: bluffs between



Chaffee and Rock View, *Steyermark* 5013 (MO). SHANNON CO: *Bush* 62 (MO). SHELBY CO: *Steyermark* 71704 (F). WASHINGTON CO: *Steyermark* 41186 (F). WEBSTER CO: 1 mi. n. of Rader, *Steyermark* 23774 (MO). NEBRASKA. SEWARD CO: Seward City Park, *Kiener* 17091 (F). NEW JERSEY. BURLINGTON CO: 1 mi. w. of south Branch of Raccoon Creek, Vince town, *Long* 48322 (GH). GLOUCESTER CO: moist wooded slope 1.5-2 mi. w. of Mullica Hill, south branch of Raccoon Creek, *Long* (GH), MERCER CO: moist rocky wooded slope, Baldpate Mt. facing Titusville, *Long* 30394 (GH). SALEM CO: Riddleton, *Beales & Bassett*, Aug. 31, 1924 (RM). NEW YORK. BRONX CO: south of Van Cortland Park, *Pennell* 7040 (PH). ORANGE CO: Black Rock Forest, *Raup* 7523 (MICH). RICHMOND CO: Princess Bay, Staten Island, *Mrs. L. M. Parker*, May 25, 1889 (GH). NORTH CAROLINA. ALAMANCE CO: 3 mi. s. of Swepsonville, *Radford* 10663 (NCU). AVERY CO: 4 mi. s. s.e. of Banners Elk on N.C. Rt. 184, *Ahles* with *Duke* 47473 (NCU). BUNCOMBE CO: Ashville, May 11, 1924 (GH). CLAY CO: 8 mi. e. of Buck Creek on U.S. Rt. 64 about 8 mi. s.e. of Clay Macon County line, *Ahles* with *Radford* 13555 (NCU). GASTON CO: 1 mi. s. of Mtn. View, near Crowders Mt., *Ahles* with *Leisner* 15051 (NCU). IREDELL CO: 4 mi. e. of Harmony on branch of Hunting Creek, *Ahles* with *Duke* 45209 (NCU). JOHNSTON CO: 1.6 mi. n. n.e. of Clayton, *Radford* 21717 (NCU). LEE CO: w. side of Fall Creek, 6 mi. n.e. of Broadway, *Stewart* 387 (NCU). ORANGE CO: Seven Mile Creek, just s. of Efland, *Ahles* with *Williamson* 53278 (NCU). PERSON CO: .5 mi. n. of Surl, *Bell* 12363 (NCU). ROCKINGHAM CO: deciduous forest near N.C. Rt. 14, s. of Leaksville, *Radford* 10799 (NCU). ROWAN CO: 2.6 mi. n.w. of Craven, 5.3 mi. n.e. of Granite Quarry, *Horton* 1104, (NCU). SWAIN CO: .3 mi. s. and 1.9 mi. e. of Alarka, *Bell* 3254 (NCU). YANCEY CO: 3.3 mi. n. of Swiss, *Ahles* with *Duke* 42718 (NCU). PENNSYLVANIA. BERKS CO: *Wilkens* 7117 (MO). DELAWARE CO: Wawa, *Pennell* 14495 (NY). FRANKLIN CO: Mercersburg, *Porter* May 28, 1850 (PH). LANCASTER CO: bank of Little Connestoga, Lancaster, *Heller*, May 18, 1889 (GH). NORTHAMPTON CO: Easton, *Green*, Aug. 31, 1859 (GH). PHILADELPHIA CO: Philadelphia, near Fairmont Park, *Parker*, May 24, 1862 (NY). YORK CO: far below McCall's Ferry, *Crawford*, July 3, 1904 (PH). SOUTH CAROLINA. DARLINGTON CO: edge of Black Creek near Darlington Country Club, *B. E. Smith* 221 (NCU). YORK CO: Sugar Creek on S.C. Rt. 160, e. of Fort Mill, *Ahles* with *Haesloop* 27209 (NCU). TENNESSEE. ANDERSON CO: Keith Farm Bluffs, Morris, *Varnell*, May 24, 1937 (TENN). HARDEMAN CO: roadside slope near Lowton, *Sharp, Fairchild, E. Clebsch & A. Clebsch* 9330 (TENN). KNOX CO: Knoxville, May 1898 (NY). LOUDON CO: Quarry Bluff near Lenoir City, *Cain & Sharp* 4508 (TENN). SHELBY CO: slope of bluff in Shelby Forest Park, *Adams* 10447 (TENN). UNION CO: Rhodelia Unit, Norris Lake Forest, *Morrison*, June 16, '37 (TENN). TIPTON CO: slope near Anglican Spring near



Richardson, *Sharp, Felix & Adams* 12158 (TENN). VIRGINIA. CULPEPPER CO: Waterloo, *Meredith*, May 24, 1922 (PH). FREDERICK CO: Belle Grove, *Hunnewell* 17850 (GH). JAMES CITY CO: Matoak Park, *Baldwin, Jr.*, (GH). PRINCESS ANN CO: rich woods, Great Neck, *Fernald & Griscom* 4357 (GH). SMYTHE CO: Marion, *E. G. Britton & Vail*, May 22, 1892 (NY). SOUTHAMPTON CO: rich sandy and loamy woods along Three Creeks, n.w. of Carey Bridge, *Fernald & Long* 10210 (GH). SURRY CO: rich calcareous wooded ravines along James River, Clarendon, *Fernald & Long* 13589 (GH). SUSSEX CO: rich deciduous woods along Nottoway River, s.w. of Homeville, *Fernald & Long* 10205 (GH). 6 mi. n.w. of Jarratt, *Fernald & Long* 11302 (GH, MO). WEST VIRGINIA. FAYETTE CO: river banks below depot, *Nuttall*, July 16, 1894 (WVA).

#### 4. *Smilax pseudo-china* L.

*Smilax pseudo-china* L. Sp. Pl. 1031. 1753.

Type: Linnacean Herbarium, London, marked by Linnaeus, "K. pseudo-china". This specimen was collected by Kalm in New Jersey or Delaware.

*S. inermis* Walt. Fl. Carol. 244. 1788.

According to Pennell "Type presumably from Berkeley County, South Carolina". Not verified.

*S. tamnifolia* Michx. Fl. Bor.-Am. 2:238. 1803.

Type: Michaux herbarium, in Mus. Nat. Hist. Natu., Paris. An isotype, Dr. Richard's specimen in Mus. Nat. Hist. Natu., Paris, labelled *Smilax tamnifolia* Michaux examined. A. Lourteig, who compared this specimen with the type, agrees it looks exactly like the type specimen.

*Coprosmanthus tamnifolius* (Michx.) Kunth, Enum. Pl. 5: 267. 1850.

*Nemexia tamnifolia* (Michx.) Small, Fl. S.E. U.S. 281. 1903.

*S. leptanthera* Pennell, Bull. Torr. Bot. Cl. 43, 412, 1916.

Type: S. M. Tracy Coll. No. 9257 (NY). Collected from Warm Springs, Georgia, on May 22, 1905. Apparently an ecological variant with slightly larger and thinner leaves.

*Smilax pseudo-china* was included with *S. lanceolata* by Linnaeus in a section with unarmed terete stems. Pennell



(1916) considered the type specimen of this Linnean species as a duplicate of *S. herbacea* L. and accepted *S. tamnifolia* Michx. as the legitimate name of the species. I am in complete agreement with M. L. Fernald\* (1944) who made a thorough investigation of the whole nomenclatural problem and, after a careful examination of the type specimens, came to the conclusion that *S. pseudo-china* L. is the same as *S. tamnifolia* Michx. and because of priority *S. pseudo-china* is to be considered as the legitimate name.

Shoots up to 2 meters high, climbing, and occasionally branching, basal leaves on older stems may be small and narrow, tendrils developing from most leaf bases. Leaves many, 5-12 cm long, thin, glabrous and glaucous beneath, larger leaves hastate, with concave margin, truncate to subcordate at base, apex rounded and cuspidate; three veins reaching the tip; peduncles solitary or in threes in the axils of leaves, often equal to the subtending leaf, if peduncles are three in number from the same axil the middle one will be the longest and with more flowers, with 10-30 flowers in a loose globose head. Tepals oblong or ovate 1.5-2.5 mm long, about 1 mm broad; anthers 0.5-1 mm long, equal to or slightly longer than the filament; style elongate, ligulate; fruit a subglobose berry, glaucous, 4-6 mm in diameter, black, 1-3 seeded. Flowering begins in the first week of May in the Carolinas and reaches the peak in the second week, progressively later to the north, up to the second week of July.

*Smilax pseudo-china* occupies the outer coastal plain from New Jersey and Delaware to South Carolina and Georgia. Fernald (1944) suggested the presence of a gap in distribution between South Carolina and southern Virginia, as frequently known in other species. But *S. pseudo-china* has been collected from this area. Specimens have been collected from Delaware, District of Columbia, Georgia, Maryland, New Jersey, North Carolina, Pennsylvania, South Carolina and Virginia.

Its closest relative apparently is *Smilax herbacea* with

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\*Fernald *Rhodora* 46: 542; 32-60.



smooth, glaucous leaves. *Smilax pseudo-china* with its chromosome number  $2n = 30$  is likely an aneuploid.

REPRESENTATIVE SPECIMENS. DELAWARE. NEW CASTLE CO: South Wilson, *Pennell* 13255 (NY). DISTRICT OF COLUMBIA. WASHINGTON CO: Kensington Swamp, *Peters*, Aug. 6, 1899 (MICH). GEORGIA. MCDUFFEE CO: *Bretlett* 1130 (MICH). MERIWETHER CO: Warm Springs, *Tracy* 9529 (TEX). UPSON CO: s. of Elkins Creek, *Duncan* 6553 (GA). MARYLAND. PRINCE GEORGES CO: near Clinton, *Holm*, June 12, 1925 (LCU). NEW JERSEY. BURLINGTON CO: N.J. Brown's Mills, *Pennell* 13249 (NY). CAPE MAY CO: *Pennell* 2232 (US). MONMOUTH CO: *Alsbury*, July 4, 1910 (MICH). NORTH CAROLINA. NURNSWICK CO: west of Wilmington, *Leeds* 1311 (PH). GASTON CO: base of Spencer Mt., 1 mi. s. of town of Spencer Mt., *Ahles* with *Leisner* 15000 (GH). GATES CO: 2 mi. n.e. of Hartford, Gates County line, *Ahles* with *Duke* 48403 (NCU). HOKE CO: 3.2 mi. s.w. of Rockfish, *Ahles* with *Neuber* 25162 (NCU). MARTIN CO: 0.6 mi. n.w. of Gold Point, *Radford* 41910 (GH, NCU). MOORE CO: Drowning Creek, on U. S. Rt. 1, *Gupton* 1602 (NCU). ONSLOW CO: *Ashe*, Sept. 1904 (NCU). ROBESON CO: 4.5 mi. out of Allenton and 0.3 mi. s. s.w. on dirt road, *Ahles* 29037 (NCU). PENNSYLVANIA. DELAWARE CO: Tinicum, *Porter*, Sept. 12, 1863 (GH, NY). SOUTH CAROLINA. BERKELY CO: Bog on Savannah, 1 mi. w. of Chicora, *Godfrey & Tryon, Jr.* 868 (NY, US). CHARLESTON CO: 14 mi. s. of Charleston, *Moldenke* 1196A (NY). CHESTERFIELD CO: 2 1/2 mi. n. of Patrick, near U. S. Rt. 1, *Radford* 12449 (NCU). CLARENDON CO: Pine Barrens, 2 mi. n. of Manning, *Stone* 245 (PH). COLLETON CO: 0.7 mi. s.e. of Hiotts, 1.5 mi. n.w. of Sidney on Co: 45, *Ahles* with *Bell* 12216 (NCU). HAMPTON CO: *Bell* 2549 (NCU). HORRY CO: 2 mi. s. of Loris, *Bell* 7766 (NCU). JASPER CO: 1 m. s. of Hampton, on S.C. Rt. 128 *Bell* (NCU). KERSHAW CO: 4 mi. e. s.e. of Westville, *Radford* 23682 (NCU). MARION CO: 1.3 mi. n. of Gresham, on S.C. Rt. 9, *Bell*, July 2, 1958 (NCU). ORANGEBURG CO: 1.9 mi. s.e. of jct. Rts. U.S. 15 & 176 on Rt. 176, n.w. of Holly Hill, *Ahles* with *Haesloop*, July 18, 1957 (NCU). SALUDA CO: 1.4 mi. s. of Ridge Spring, *Radford* 23097 (NCU). VIRGINIA. CHESTERFIELD CO: south of Manchester, *Wherry & Pennell* 14467 (PH). DINWIDDIE CO: "Reams Bog", s. of Burgess, *Fernald & Long* 9029 (GH). GREENVILLE CO: Mill Swamp, s. of Emporia, *Fernald & Long* 10587 (GH). JAMES CITY CO: 5 mi. w. of Williamsburg, *Grimes* 3806 (NY). NANSEMOND CO: Dismal Swamp, 9 mi. n. of Lake Drummond, *Ahles* with *Coker* 58336 (NCU). NORFOLK CO: Great Dismal Swamp, n. of Yadkin, *Fernald & Long* 12301 (GH). NORTHAMPTON CO: s. of Kendall Grove, *Fernald, Long & Fogg, Jr.*, 5271 (GH). PRINCE GEORGE CO: about 3 mi. s.e. of Petersburg, at head of Poo Run, *Fernald, Long & Smart* 5722 (GH). SOUTHAMPTON CO: Franklin, *Heller, Jr.*, 925 (GH); near Blackwater River, Cobb's Wharf, *Fernald & Long* 10206, 1939 (GH). SUSSEX CO: n. of Wakefield, *Fernald & Long* 7383 (GH).



5. *Smilax illinoensis* sp. nov.

Typus: Dane Co., Wisconsin; *John Schaars*, Oakwoods (T8N; R9E; Sect. 32), May 15, 1958 (WIS).

Caulis 0.5-1.0 m longus, erectus, ad extremum cirris paucis, rare divisus. Folia multa, bracteolata, ab subtilis, inferiora majora, superiora minora. Petioli longi laminis leviter anguste ovatis, inferne pubescentibus, base ovato-truncata vel leviter cordata, margine convexa, extreme acuto-acuminato. Peduncula 3-10, inferiora longa, bracteis axillaria, floribus 10-50 in cacuminibus semiglobosis, tepalia 3.5-4.5 mm longa, 1.5-2.0 mm lata. Antherae 1.2-5 mm longae, filamentis breviores. Baccae globosae, semina 3-5. Invenitur multum apud regionem "Great Lakes", Americae Septentrionalis.

Shoots 0.5-1.0 meter high, erect with few short tendrils, mostly at the top, rarely branching; usually transition from bract to leaf is abrupt. Leaves many, thin at anthesis, larger leaves below and progressively smaller above, petioles long, blades narrowly ovate, pubescent beneath, margin convex, base ovate to truncate, and tip acute to acuminate. Peduncles 5-10, lower ones long and axillary to the bracts, with 10-50 flowers in a semiglobose head at top (Fig. 25). Tepals 3.5-4.5 mm long, 1.5-2.0 mm broad. Anthers 1.2-1.5 mm long, usually shorter than filaments. Fruit a globose berry, 3-5 seeded. Flowering begins in the first week of May and lasts to the second week of June.

Distribution is mostly in the Great Lakes Region, in thickets along the roadsides. Specimens have been collected from Arkansas, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin and from Canada close to the Great Lakes.

This species is close to *Smilax lasioneuron* and *S. ecirrhata* and is often identified as either of these species. It differs from *S. lasioneuron* by its short erect bushy nature, long petiole and thin leaves with acute to truncate base. In general, it is taller than *S. ecirrhata* and with its conical nature with many long petiolate leaves and ovate to truncate leaf bases and many short tendrils, it is distinct from



*S. ecirrhata*. However, it resembles *S. ecirrhata*, being erect, and the lower peduncles developing from bract axils. It is possible that this species might have resulted from past hybridization with or without back crossing.

REPRESENTATIVE SPECIMENS: ILLINOIS. CHAMPAIGN CO: Urbana, *Gates* 2335 (WIS). DU PAGE CO: Naperville, *Powell*, May 21, 1898 (WIS). KANE CO: 7 mi. w. of Aurora, *Erlanson*, Aug. 1923 (MICH). RICHLAND CO: Larchmound, Olney, *Ridgway* 723 (GH). SANGAMON CO: *Lodewyks* 362 (MO). STARK CO: near Wady Petra, *Chase*, May 26, 1900 (F). ST. CLAIR CO: *Eggert*, May 8, 1892 (MO). INDIANA. HOWARD CO: 3 mi. n.w. of Kokomo, *M. Ek*, May 5, 1942 (GH). TIPPECANOE CO: 4 mi. n. of Lafayette, *Deam* 54807 (MO). SHELBY CO: 4 mi. s.e. of Shelbyville, *Fraser* 17695 (GH). WILLS CO: 1/4 mi. e. of Bluffton, *Deam*, July 2, 1905 (MO). IOWA. BOONE CO: *Swailes*, May 20, 1952 (PH). DUBUQUE CO: 2 mi. n.w. of Luxemburg *Grether* 8159 (WIS). JASPER CO: *Jones*, May 11-26, (GH). JOHNSON CO: *T. J. Fitzpatrick & M. F. L. Fitzpatrick*, May 13, 1900 (US). MICHIGAN. GRATIOT CO: *A. Davis*, May 15, '95, June 12, '95 (MICH). INGHAM CO: East Lansing, *Stewer* May 25, 1938 (MICH). KENT CO: Grand Rapids, *Bailey*, June 11, 1892 (MICH). LAPEER CO: Flint River, *Voss* 8236 (MICH). MARQUETTE CO: west bank of the Escamba, *Harrison*, June 8, 1908, MIDLAND CO: along Salt River, 4 mi. s. of Colman, *Dreisbach* 6702 (MICH). ONTOMONGAN CO: Porcupine Mt., *Richards* 3076 (MICH). SHIAVASSEE CO: Owasso, *Hicks*, May 18, 1889 (MICH, US). SAGINAW CO: *Carr, Jr.*, May 30, 1956 (MICH). WASHTENAW CO: Ann Arbor, *La Rue*, May 18, 1915 (MICH). *Grassel* 5272a (MICH). WAYNE CO: Belle Isles, Detroit, *Farwell*, May 23, '95 (MICH). MINNESOTA. RAMSEY CO: *Sheldon*, May 1891 (RM). RICO CO: Northfield, *Goldsmith* 1912 (NY). MISSOURI. JEFFERSON CO: near Barnhart, *Steiermark* 1066 (MO). PIKE CO: Sandy Creek, 4 1/2 mi. s.e. of Cyrene, *Steiermark* 28611 (F). SCHUYLER CO: *Steiermark* 69915 (F). WISCONSIN. ASHLAND CO: Ashland, White River bottom, *Robb* 121 (WIS). BROWN CO: Loin Wood, *J. H. Smith* 12. 1-114 (F). CALUMET CO: 1 mi. s. of Brillion on Rt. 114, *Strandberg* 104 (WIS). CLARK CO: s.e. of Stanley, *Schmidt*, June 4, 1933 (WIS). COLUMBIA CO: n. of Fall River on County trunk, *Oelke & H. Edwards* (WIS). DANE CO: *Schaars*, May 15, 1958 (WIS). FOND DU LAC CO: Taychudah, *Fassett, Cunningham & Erdman* 15251 (WIS). GREEN CO: 3 mi. n. of Albany, *Hammerstrom*, May 28, 1928 (WIS). *Wadmond*, Sept. 15, 1929 (WIS). IOWA CO: R. Hansen Farm, *Swan* 39 (WIS). JEFFERSON CO: Lake Mills, *Fassett* 8092 (WIS). JUNEAU CO: 4 mi. e. of Necedah, *Fernholz*, May 14, 1930 (WIS). KEWAUNEE CO: 1 mi. w. of Dyckesville, *Iltis, Schlising & Johnson* 17384 (WIS). LAFAYETTE CO: along Pectonica River, 5 mi. n. of Belmont, *Stichney*, May 17, 1959 (WIS). LANGLADE CO: woods on Hwy. 64, across from Black Brook, *Owen* 140 (WIS). MANITOWOC



co: jct. Rts. 149 & M. Spring Valley, *Tryon, Jr.* 3523 (WIS). POLK co: St. Croix Falls, *Fassett* 15555 (WIS). RICHLAND co: Kepter Ridge, *Heinstein*, May 15, 1962 (WIS). ROCK co: Janesville, *Mead & Blunt*, May 29, 1930 (WIS). SAUK co: Reedsburg, *Fassett & Curtis* 20054 (WIS). SHEBOYGAN co: Sheboygan, *Goessl*, June 6, 1914 (WIS). VERNON co: Viroqua, *Hanson* 240 (WIS). WALWORTH co: along CMS & P and Pac. R.R. right-of-way, "Springfield Hill", *Wadmond*, Sept. 20, 1929 (WIS). WASHINGTON co: Hartford, *Quandt*, June 1, 1929 (WIS). WAUKESHA co: west side of Lake Nehmabin, *Ugent*, May 19, 1957 (WIS).

6. *Smilax ecirrhata* (Englemann ex Kunth) S. Watson

*Coprosmanthus herbaceus* var. *ecirratus* Engelm. ex Kunth  
Enum. Pl. 266. 1850.

Type: Engelman in Herb. reg. Berol probably destroyed in World War II. Photograph of Engelman specimen in the Boissier herbarium (G) designated 'Type' examined. This specimen with its long petiolate narrow leaves is atypical of the species. Another specimen from Engelman's collection, typical of *S. ecirrhata*, labelled "*Smilax herbacea*, grassy woods east of Bellesville, Ill., May 1835" and later annotated by him as "*Smilax acirrho* nov. Mai 1835" is found in herb. Missouri Bot. Gard., St. Louis. This specimen should be considered as the lectotype of the species. Even though the epithet *ecirrhata* was first applied by Engelman, it was first validly published by Kunth in 1850.

*Smilax herbacea* var. *ecirrhata* (Engelm. ex Kunth) A.  
DC Monogr. Phan. 1: 52. 1878.

*Smilax ecirrhata* (Engelman ex Kunth) S. Watson. A.  
Gray's Man. ed. 6, 520. 1890.

*C. ecirratus* (Engelm. ex Kunth) Chapman, Fl. S. U. ed.  
3, 504. 1897.

*Nemexia ecirrhata* (Engelm. ex Kunth) Small, Fl. S.E. U.S.  
280. 1903.

Shoots 3-8 dm high, erect, with few or no tendrils, and with long lower internodes. The lower third or one half of the stem with bladeless bracts; leaves equally distributed on the upper part of the stem, progressively smaller up-



ward, petioles definitely shorter than the blade, blade broad ovate, subrotund or cordate, pubescent beneath (not prominently on the veins), thin, base truncate to cordate, margin convex, tip round and pointed to acuminate: Peduncles usually 1-3, the lower ones from bract axils below foliar leaves, umbels few, flowered and hemi-spherical. Tepals 3.5-4 mm long, about 1.5 mm broad, anthers 1.2-1.5 mm long subequal to filaments. Fruit a globose berry, purple black and 3-5 seeded. Flowering begins in the first week of May and extends to the second week of June.

Distribution is mostly in roadside thickets in the Mid-central Plains and the Great Lakes Region. Specimens have been collected from Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio, Oklahoma, Tennessee, and Wisconsin.

Its closest relatives apparently are *Smilax huberi* and *S. biltmoreana*. Both are shorter and with fewer leaves approximate at tip and they differ from *S. ecirrhata* mainly in their leaf shape. Leaves of *S. biltmoreana* are nonpubescent.

REPRESENTATIVE SPECIMENS. ILLINOIS. CHAMPAIGN CO: Urbana, Gates, May 31, 1907 (GH). 2329 (MICH). Brownfield Woods, Somer, Pease 11, 895 (GH). COOK CO: Stony Island, Chicago, Greenman 3643 (GH). DU PAGE CO: near Roselle, Chase 9418 (F). GALLATIN CO: Palmer 15326 (MO). KANE CO: Steyermark 68342 (F). LAKE CO: 5 mi. n. of Barrington, Steyermark 63526 (F). LA SALLE CO: Starved Rock State Park, Lansing, Jr., 3859 (F). MARSHALL CO: west fork of Senachequine Creek near Lawn Ridge, Chase, May 19, 1907 (MICH). PEORIA CO: 1 1/2 mi. s.e. of Princeville, Chase 1678 (NY). RICHLAND CO: Larchmound, Olney, Ridgway 722 (GH). ST. CLAIR CO: Eggert, May 8, 1892 (MO). INDIANA. PORTER CO: 5 mi. s.e. of Michigan City, Notre Dame, Nieuwland, May 15, 1910 (US). IOWA. FAYETTE CO: Fink 395 (US). HARRLSON CO: Burgers (NY). IOWA CO: rich woods n. of Middle Amana, Easterly 175 (WVA). JOHNSON CO: MacBridge State Park, Kennedy & Kluss 40 (NCU); Big Grove Twp., Davis & Pfeifer, May 20, 1956 (NCU). SCOTT CO: Wapsi Bottoms, St. Ambrose College 2137a (LCU). SIOUX CO: Oak Grove State Park, Carter 120 (NCU). KENTUCKY. KNOX CO: 6 mi. n. of Knoxville on U. S. Rt. 25, Hobb 105 (NCU). NELSON CO: Sr. Agnes 1391 (LCU). MICHIGAN. BARRY CO: Haugen 236 (MICH). BRANCH CO: Butler Twp., Voss 3703 (MICH). HOUGHTON CO: near mouth of Sturgeon River, Richards



1267 (MICH). JACKSON CO: *S. H. & R. D. Camp*, May 20, 1894 (WIS); May 20, 1897 (F). LAPEER CO: n.e. side of Big Fish Lake, *Voss* 7287 (MICH). MACOMB CO: s. of Utica, *Billington*, June 10, 1917 (MICH). MENOMINEE CO: City of Menominee, *Grassl* 2835 (MICH). ST. CLAIR CO: near Port Huron, *Dodge*, Aug. 21, '92 (MICH). TUSCOLA CO: 8.5 mi. e. of Cairo, *Voss* 7346 (MICH). WASHTENAW CO: Cascade Glen, West Ann Arbor, *Erlanson* 117 (MICH). New Comb Tract Forest, *Fordal* 1636 (NCU). WAYNE CO: Detroit, *Austin*, May 1863 (GH); Wayne, *Farwell* 9150 (MICH). MINNESOTA. RAMSEY CO: *Sr. St. Lawrence* 57, (LCU). MISSOURI. CARROLL CO: 1/2-1 mi. n. of Mandeville, *Steyermark*, June 10, 1952, (F). CHRISTIAN CO: *Steyermark* 23165 (MO). CLARK CO: along Des Moines River 1/2-1 1/2 mi. n.w. of Athens, *Steyermark* 28694 (GH). HARRISON CO: *Steyermark* 10962 (MO). JEFFERSON CO: *Eggert*, Aug. 24, 1892 (MO). JOHNSON CO: 3 1/2 mi. n. of Holdon, *Steyermark* 67860 (F). LEWIS CO: *Steyermark* 25635 (MO). LINN CO: 6 mi. s.w. of New Boston, *Steyermark* 40480 (GH). MACON CO: *Bush* 7632 (GH, NY). MERCER CO: *Steyermark* 7850 (MO). MILLER CO: *Steyermark* 13078 (MO). MONROE CO: *Steyermark* 66542 (F). MORGAN CO: *Bush* 13743 (MO). MONTGOMERY CO: *Steyermark* 65353 (F). OSAGE CO: e. of Durcoe, *Steyermark* 10730 (MO). PETTIS CO: 2 1/2 mi. s. of Sedalai, *Steyermark* 67988 (F, MO). PIKE CO: Curryville, *Steyermark* 74358 (F). PUTNAM CO: *Steyermark* 73574 (F). SCHUYLER CO: east side of Charton River, e. of Livonia, *Palmer & Steyermark* 41058 (A). SCOTLAND CO: Iron Mt. area, *Steyermark* 74447 (F). OHIO. ERIE CO: Perkins, *Moseby*, Sept. 12, '97 (GH). LUCAS CO: *James C. Myers*, Aug. 12, 1940 (WVA). OKLAHOMA. ADAIR CO: 7 mi. s.w. of Stillwell, *Moore* 55-84 (WIS). TENNESSEE. KNOX CO: Knoxville, w. of T. Farm, *Iltis* 1700 (WIS). WISCONSIN. BROWN CO: near Atkinson, *Schuett*, May 6, 1890 (NY). DANE CO: Madison, *Dauffman*, May 27, 1902 (MICH). GREEN CO: Co. K, Twin Grove Rd., *Fell* 57-1463 (WIS). JEFFERSON CO: Wollein's Woods, Milford Twp., *Allen & Wright*, June 3, 1938 (WIS). PIERCE CO: Diamond Bluff, *Wadmond, Fassett, Sperry & Reeve* 18193 (WIS). SAUK CO: Parfrey's Glen, Merrimac Twp., *Fassett* 2930 (WIS); *Erickson & Johnson*, May 27, 1960 (WIS). TAYLOR CO: Diamond Lake, Roosevelt Twp., *Piehl* 321 (WIS). VERNON CO: Koeth's Wood, *Hartley, Thorne & Hartley* 251 (WIS).

7. *Smilax hugeri* (Small) J.B.Norton ex Pennell

*Nemexia hugeri* Small, Fl. S.E.U.S. 280. 1903.

Type! N. Y. Bot. Garden. Collected on and about Stone Mountain (100-1500 feet), De Kalb County, Georgia by J. K. Small, May 1-18, 1895. Stem "6-12 inches high, leaves uncial" elliptic leaves, acute at each end, from Alabama.



*Smilax hugeri* (Small) J. B. Norton ex Pennell in Bull. Torr. Bot. Cl. 43: 420. 1916.

*Smilax ecirrhata* var. *hugeri* (Small) Ahles, Jour. Elisha Mitch. Sci. Soc. 8: 172. 1964.

Shoots 2-5 dm tall, erect, tendrils usually none, or very few and rudimentary. Leaves few, approximately at top or equally distributed, more or less equal in size, oblong oval, 8-12 cm long, pubescent beneath, base ovate to slightly cordate, broadly rounded and obtuse or abruptly pointed at the apex. Peduncles 1-3, the lower ones mostly from bract axils, umbels few flowered. Tepals oblong, 3-3.5 mm long, 1.25-1.5 mm broad. Anthers 1-1.5 mm long, shorter than filaments. Fruit a globose berry 8-10 mm in diameter. Seeds 2-3. Flowering begins in the first week of April and lasts to the second week in May.

Distribution is restricted to the southeastern part of the United States. Specimens have been collected from Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee. Specimens from Tennessee are not so sharply defined as elsewhere and often are taxonomically puzzling. This is taken as possible evidence of the divergence that has occurred in the *Smilax ecirrhata* complex in this region.

The closest relatives, apparently, of this species are *Smilax biltmoreana* and *S. ecirrhata*. However, it differs from both mainly in the morphology of the leaf.

REPRESENTATIVE SPECIMENS: ALABAMA. JACKSON CO: Bryant, L. V. Porter, April 29, 1939 (GH). AUTANGA CO: Harper 3169 (MO). LEE CO: Auburn, Earl & Baker, Sept. 8, 1897 (NY). FLORIDA. GADSDEN CO: Gadsden, Chapman, 1835 (NY). JACKSON CO: Marianna Caverns State Park, Mitchell 982 (FSU). LEON CO: mixed forest, Karz, Aug. 13, 1942 (FLAS). GEORGIA. CLARKE CO: 1/2 mi. s. of Hull, F. Harper 1560, May 20, 1940 (PH). CLAY CO: along Cemochechobee Creek, n. of Forest Gaines, Thorne 3462 (GH). DADE CO: 2.8 mi. e. of Rising Fawn, road to Lookout Mt., McVaugh 5591 (FSU). EFFINGHAM CO: 4 mi. n.e. of Stillwell, Hardin & Duncan 15151 (GA). MARION CO: n. of Buena Vista, R. M. Harper, July 10, 1902 (MO). RICHMOND CO: Cuthbert, Sept. 15, 1899; Fruit, May 5, 1900; Fl. April 25, 1903 (FLAS). NORTH CAROLINA. ANSON CO: 3 mi. s. of Wadesboro, Radford 43596 (NCU). MACON CO: 1/2 mi. s.w. Ellijay, Radford, June 22, 1946 (NCU). SOUTH CAROLINA. AIKEN CO: 1.3 mi. w. of jct. U. S. Rt. 176 & S. C. Rt. 254 on U. S. Rt. 176, Ahles



55138 (NCU). ALLENDALE CO: 2 mi. s.w. of Barton, on Co. 68, *Bell* 10660 (FSU, GA, NCU). BAMBERG CO: 2 mi. e. n.e. of jct. Co. 18 & S. C. Rt. 362 on Co. 18, *Ahles* with *Haesloop* 22235 (GH, NCU). BARNWELL CO: *C. L. Porter*, June 10, 1956 (NCU). CALHOUN CO: Swamp Creek on S. C. Rt. 261, e. n.e. of Cameron, *Ahles* with *Haesloop* 21821 (NCU). CHESTER CO: near Catawba River at Great Falls, *Radford* 43501 (NCU). CLARENDON CO: 6.5 mi. south of Jordan, *Radford* 24634 (NCU). COLLETON CO: woods near swamp on U. S. Rt. 21, 2 mi. n.w. of jct. U. S. Rt. 17A, *Bell* 4611 (NCU). DARLINGTON CO: Hartsville, *Norton* 357 (US). DORCHESTER CO: Little Creek on Co: 130, s.w. of Reevesville, *Ahles* with *Haesloop* 26238 (NCU). GEORGETOWN CO: Brookgreen, *Tarbox*, May 17, 1943 (NCU). KERSHAW CO: near S. C. Rt. 97, 8 mi. w. of Camden, *Radford*, 20882 (NCU). LANCASTER CO: s. s.w. of Lancaster, *Ahles* 23075 (NCU). LEXINGTON CO: vicinity of Batesburg, *McGregor* 501 (US). MC CORMICK CO: near Stevens Creek, 2 mi. n.e. of Clarks Hill, *Radford* 43530 (NCU). ORANGEBURG CO: 3.7 mi. s.w. of Neeses on S. C. Rt. 4, *Ahles* with *Haesloop* 25305 (NCU). RICHLAND CO: Columbia (Charleston), *Smyth*, June 1891 (NCU). SUMTER CO: 4 1/2 mi. w. of Pine Wood near Milford, *Radford* 21013 (NCU). WILLIAMSBURG CO: 5 mi. s. of Gourdin, *Radford* 21390 (NCU). TENNESSEE. ANDERSON CO: Cove Creek Dam road via Cross road, *Underwood* 283 (TENN). BLOUNT CO: limestone bluff along highway to Park near Walland, *Sharp* 28147 (TENN). CLAIBORNE CO: near Harrowgate, moist shaded slope along Powell River above Bridge, *Sharp & Creer* 26840 (TENN). COFFEE CO: moist shaded creek bottom, Rutledge Falls near Tallaloma, *Sharp, A. Clebsch & E. Clebsch* 4704 (TENN). FRANKLIN CO: rocky slope near quarry along Wewanee Winchester road, *Shanks* 1871 (TENN). GRUNDY CO: wooded limestone slope of Cumberland H. Mont Eagle, *Svenson* 7652 (TENN). KNOX CO: Knoxville, *Ruth* 441 (GH); on hillside in woods, Cherokee, *Hesler* 368 (TENN); hillside sloping toward "Sink Hologate" on U. T. Farm, Knoxville, 1 mi. from Knoxville, *Iltis*, May 5., 1943 (TENN). LOUDON CO: Lenoir City, woods 2 mi. s., *Cain & Sharp* 4484 (TENN). MORGAN CO: woods above Petros, *Underwood* 32687 (TENN). POLK CO: moist slope near Hiwasee River, w. of Reliance, *Mr. & Mrs. Sharp, Jones, Varner & Ramsey* 30986 (TENN). ROANE CO: slope along Creek, 4 mi. out Rt. 61 from Harriman toward Oliver Spring, *Sharp, Ellis & Adams* (TENN). SCOTT CO: growing on steep slope between Norma and Montgomery, *Sharp* 25678 (TENN). UNION CO: Walden's Ridge, Effie, Island F, Norris Lake, *Mrs. Kelley*, April 29, 1935 (TENN). VAN BUREN-BLEDSOE CO: Cumberland Plateau, *Iltis* 3196 (TENN).

8. *Smilax biltmoreana* (Small) J. B. Norton ex Pennell  
*Nemexia biltmoreana* Small, Fl. S.E. U.S. 281. 1903.

Type! Biltmore herbarium No. 906b, now in New York



Botanical Garden. Biltmore, N. C., May 4, 1897, J. K. Small.

*Smilax biltmoreana* (Small) J. B. Norton ex Pennell, Bull. Torr. Bot. Cl. 43: 413. 1916.

*S. ecirrhata* var. *biltmoreana* (Small) Ahles, Jour. Elisha Mitch. Sci. Soc. 80: 172. 1964.

Shoots 2-6 dm high, erect, without tendrils. Leaves few approximate at tip, ovate, 6-12 cm long, wholly glabrous and glaucous beneath, thick even at anthesis, cordate at base, tip acute to acuminate. Peduncles 1 to few, lowest ones mostly from the axil of the lowest leaf or from a bract axil. Flowers few. Tepals of the staminate flowers ovate to oblong, 2.5-3.5 mm long, 1.25-1.5 mm broad. Anthers about 1.5 mm long, longer than filaments. Fruit a globose berry, with 2-3 seeds. Flowering is mostly in the third and fourth weeks of May.

Distribution is restricted to the Mountain Region of southeastern United States. Specimens have been collected from Alabama, western Florida, Georgia, North Carolina and western South Carolina.

Apparently, its nearest relatives are *Smilax hugeri* and *S. ecirrhata*. It differs from both by the absence of pubescence and in the leaf shape.

REPRESENTATIVE SPECIMENS: ALABAMA. ESCAMBIA CO: hardwood slashpine forest, Ept. Forest s. of Brewton and e. of Highway 93, Ford 5209 (FLAS). FLORIDA. JACKSON CO: Marianna Cavern State Park, Mitchell 972 (FSU). GEORGIA. MC DUFFIE CO: vicinity of Thomsin, Bartlett 1496 (MICH). LUMPKIN CO: Mt. Woods, Frogtown Gap, Leeds 1561 (PH). KENTUCKY. WARREN CO: Ky. Rt. 101, n. of bank Barren River at Warren-Allen Co. line, M. Brown & J. Brown, Jr., 4587 (NCU). NORTH CAROLINA. BUNCOMBE CO: Biltmore Herbarium 14954 (RM). CABORRUS CO: branch of Little Buffalo Creek, 2 mi. s. of Rowan Co. line and 3 mi. e. of Watts crossroads, Ahles with Leisner 19665 (NCU). CLEVELAND CO: near top, King's Mt., Coker, May 19, 1919 (NCU). GASTON CO: Crowder's Mt., Radford & Haesloop 7080 (NCU). HENDERSON CO: Rev. J. Davis 7308 (MO). LINCOLN CO: wooded margin of Leeper's Creek, e. of Iron Station, Bell 8885 (NCU). POLK CO: between Tryon and Sluda, Ashe, May 23, 1916 (NCU); Tryon, Peattie 1372 (NCU). RANDOLPH CO: 1 1/2 mi. n.w. of Randleman, Melvin, Sept. 13, 1953 (NCU). STANLEY CO: 4.8 mi. e. n.e. of Albmarab near Little Mt., Ahles with Radford 11898



(FSU). TRANSYLVANIA CO: Pisgah Forest, *Ashe* 2342 (NCU); 3 mi. s.e. of Breward, *Freeman* 57281 (NCU). SOUTH CAROLINA. CHEROKEE CO: 4.3 mi. s.e. of Cherokee Cleveland Co. line on U. S. Rt. 29, *Ahles* with *Haesloop* 22668 (NCU); 1.4 mi. s. of U. S. Rt. 29A on dirt road along Broad River, *Ahles* with *Haesloop* 31044 (NCU). GREENVILLE CO: summit of Caesar's Head, *Leeds* 1310 (PH). OCONEE CO: dry woods near Jocassee, *Freeman* 59291 (NCU). PICKENS CO: Table Rock State Park, *Freeman* 58164 (NCU); 3.8 mi. n. from U. S. Rt. 178 on Sassafras Mt. Road, *Ahles* with *Bell* 14335 (NCU). SUMTER CO: 6 mi. s. s.w. of Sumter near U. S. Rt. 15, *Radford* 24053 (NCU).

### EXCLUDED SPECIES

- S. herbacea* Thunb. Fl. Cap. ed. Schult, 341 (1823) = *S. salicifolia* Griseb. in Mart. Fl. Bras iii 1. 19 Bras.
- S. pseudo-china* Bert. ex Kunth, Enum. Pl. V 183 = *S. balbisiana* Kunth, Enum. Pl. V. 183. Ind.
- S. pseudo-china* Blanco, Fl. Filip. ed. 1, 795 (1837) = *S. blancoi* Kunth, Enum. Pl. V. 262. Philipp.
- S. pseudo-china* Descourt., Fl. Antill. VII, 47. t. 462 (1829) = (Quid) Ind. occ.
- S. pseudo-china* Herb. Madr. ex Wall. Cat. n. 5130 = *S. zeylanica* Linn. Sp. Pl. 1029. Ind. or Malaya.
- S. pseudo-china* Mart. & Gal. ex A. DC. in DC. Monog. Phan i, 87 (1878) = *S. moranensis* Mart. & Gal. in Bull. Acad. Brux. IX, ii (1842) 389. Mexico.
- S. pseudo-china* Schiede ex A. DC. in DC. Monog. Phan. i, 84 (1878) = *S. cordifolia* Humb. & Bonpl. ex Willd. Sp. Pl. IV. 778. Mexico, Ind.
- S. pseudo-china* Sieber, ex A. DC. 1. c. 170 (1878) = *S. telferiana* Wall. Cat. n. 5121 A. Ins. Maurit.
- S. pseudo-china* Gray, Manual of the Botany of the northern U.S. 1848 = *S. hispida* Muhl.
- S. pseudo-china* Rydb. Fl. Prairies & Plains of Central North America 227 (1932) = *S. hispida* Muhl.
- S. pseudo-china* Britton and Brown, Ill. Fl. U. S. & Canada. 1: 441 (1896) = *S. hispida* Muhl.

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